

What is claimed is:

1. A polishing apparatus, comprising an electrode comprised of a plurality of electrode elements, a driving means for driving the electrode, and abrasive particles having a dielectric property disposed between the electrode and a workpiece at a position at which processing pressure is applied by a Coulomb force produced by application of an alternating-current voltage to the electrode.

2. A polishing apparatus according to claim 1, wherein the plurality of electrode elements have different diameters and are disposed in a concentric circular formation and mutually separated by insulative material.

3. A polishing apparatus according to claim 1, wherein different voltages are applied to the plurality of electrode elements.

4. A polishing apparatus according to claim 2, wherein different voltages are applied to the plurality of electrode elements.

5. A polishing apparatus according to claim 2, wherein a lower voltage is applied to inner electrode elements and a higher voltage is applied to outer electrode elements.

6. A polishing apparatus according to claim 3, wherein a lower voltage is applied to inner electrode elements and a higher voltage is applied to outer electrode elements.

7. A polishing apparatus according to claim 4, wherein a lower voltage is applied to inner electrode elements and a higher voltage is applied to outer electrode elements.

8. A polishing apparatus according to claim 1, wherein the electrode is a cylindrical electrode comprised of a film-shaped conductor and an insulative layer that are wound around a spindle so that the conductor and insulative layer are alternated around the spindle.

9. A polishing apparatus according claim 1, further comprising an insulative tube used to supply a fluid containing a dispersion of abrasive particles to the workpiece and electrodes provided around the insulative tube to adjust fluid flow from the insulative tube.

10. A polishing apparatus according to claim 2, further comprising an insulative tube used to supply a fluid containing a dispersion of abrasive particles to the workpiece and electrodes provided around the insulative tube to adjust fluid flow from the insulative tube.

11. A polishing apparatus according to claim 3, further comprising an insulative tube used to supply a fluid containing a dispersion of abrasive particles to the workpiece and electrodes provided around the insulative tube to adjust fluid flow from the insulative tube.

12. A polishing apparatus according to claim 4, further comprising an insulative tube used to supply a fluid containing a dispersion of abrasive particles to the workpiece and electrodes provided around the insulative tube to adjust fluid flow from the insulative tube.

13. A polishing apparatus according to claim 5, further comprising an insulative tube used to supply a fluid containing a dispersion of abrasive particles to the

workpiece and electrodes provided around the insulative tube to adjust fluid flow from the insulative tube.

14. A polishing apparatus according to claim 6, further comprising an insulative tube used to supply a fluid containing a dispersion of abrasive particles to the workpiece and electrodes provided around the insulative tube to adjust fluid flow from the insulative tube.

15. A polishing apparatus according to claim 7, further comprising an insulative tube used to supply a fluid containing a dispersion of abrasive particles to the workpiece and electrodes provided around the insulative tube to adjust fluid flow from the insulative tube.

16. A polishing apparatus according to claim 8, further comprising an insulative tube used to supply a fluid containing a dispersion of abrasive particles to the workpiece and electrodes provided around the insulative tube to adjust fluid flow from the insulative tube.